Amendments to the Claims:

Pursuant to 37 C.F.R. §1.121(c), this listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (cancelled)

2. (cancelled)

3. (cancelled)

4. (cancelled)

5. (cancelled)

6. (cancelled)

7. (cancelled)

8. (cancelled)

9. (cancelled)

10. (cancelled)

11. (cancelled)

12. (cancelled)

13. (cancelled)

14. (cancelled)

15. (cancelled)

16. (cancelled)

17. (cancelled)

18. (cancelled)

19. (cancelled)

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

25. (cancelled)

26. (cancelled)

27. (cancelled)

28. (cancelled)

29. (cancelled)

30. (cancelled)

31. (cancelled)

32. (Original) Apparatus for stimulating tissue having a capacitance, comprising:

charge circuitry which is adapted to apply a potential to the tissue, causing a voltage to develop across the capacitance of the tissue; and

discharge circuitry which is adapted to inject a current to the tissue so as to discharge the capacitance, the current being substantially independent of the voltage across the capacitance.

33. (Original) Apparatus according to claim 32, wherein the charge circuitry comprises a stimulation capacitor, an inductor, and a micro-controller which is adapted to apply pulses having a variable duty cycle to the inductor, and wherein the micro-controller causes the inductor to charge the stimulation capacitor to the voltage by altering the variable duty cycle.

34. (Currently Amended) Apparatus according to claim 32 ~~or claim 33~~, wherein the current is substantially fixed.

35. (Currently Amended) Apparatus according to any of claims 32~~-34~~, wherein the potential causes a stimulation current in the tissue, and wherein the current injected by the discharge circuitry is a substantially pre-set fraction of the stimulation current.

36. (Currently Amended) Apparatus according to any of claims 32~~-35~~, wherein the discharge circuitry is adapted to measure the voltage across the capacitance, and is adapted to halt injection of the current to the tissue when the voltage is substantially zero.

37. (Currently Amended) Apparatus according to any of claims 32~~-36~~, ~~and~~ comprising a micro-controller which is adapted to measure a time to discharge the capacitance, and to generate a measure of the capacitance in response to the time.

38. (Currently Amended) Apparatus according to any of claims 32~~–37~~, ~~and~~ comprising a micro-controller which is adapted to measure a time to apply the potential to the tissue, and to generate a measure of the capacitance in response to the time.

39. (Currently Amended) Apparatus according to any of claims 32~~–38~~, wherein the charge circuitry is adapted to measure an impedance of the tissue, and to alter the potential applied to the tissue in response to the impedance.

40. (Currently Amended) Apparatus according to any of claims 32~~–39~~, wherein the current comprises a value that substantially eliminates anodal break excitation of the tissue.

41. (Original) Apparatus according to claim 40, wherein the value is less than a pre-set fraction of a stimulation current caused by the potential.

42. (Original) Apparatus according to claim 41, wherein the pre-set fraction is approximately 5%.

43. (Original) Apparatus according to claim 32, and comprising:

a battery having a first battery terminal and a second battery terminal coupled to ground and generating a battery voltage which powers at least a first part of the charge circuitry and at least a second part of the discharge circuitry; and

a first and a second stimulation electrode between which

the capacitance is formed,

wherein the first battery terminal and the first stimulation electrode are connected, and wherein the charge circuitry generates the potential between the first and the second stimulation electrodes, and wherein the discharge circuitry injects the current between the first and the second stimulation electrodes.

44. (Original) Apparatus according to claim 43, and comprising:

a stimulation capacitor which receives a stimulation potential generated by the charge circuitry; and

a detector which monitors a second-stimulation-electrode potential on the second stimulation electrode, the detector being coupled between ground and the stimulation potential.

45. (Original) Apparatus according to claim 44, and comprising a micro-controller which receives a Boolean signal from the detector in response to the second-stimulation-electrode potential, and which decrements a targeted voltage set by the micro-controller in response to the signal being true, and which increments the targeted voltage in response to the signal being false.

46. (Original)Apparatus according to claim 32, and comprising:

a detector which monitors a state of at least part of the charge circuitry, and which generates a state signal in response to the state; and

a micro-controller which receives the state signal and

which sets the potential in response thereto.

47. (Original) Apparatus according to claim 46, wherein the micro-controller generates a pulse, at the potential, in a sequence of pulses and sets a target voltage in response to the state signal and the potential, and wherein the charge circuitry is adapted to alter the potential to a future potential in response to the target voltage, and to apply the future potential to a subsequent pulse in the sequence.

48. (Original) A method for stimulating tissue having a capacitance, comprising:

applying a potential to the tissue so as to cause a voltage to develop across the capacitance of the tissue; and injecting a current to the tissue so as to discharge the capacitance, the current being substantially independent of the voltage across the capacitance.

49. (Original) A method according to claim 48, wherein the current is substantially fixed.

50. (Currently Amended) A method according to claim 48 ~~or claim 49~~, wherein the potential causes a stimulation current in the tissue, and wherein the current injected is a substantially pre-set fraction of the stimulation current.

51. (Currently Amended) A method according to any of claims 48~~-50~~, and comprising measuring the voltage across the capacitance, and halting injection of the current to the tissue when the voltage is substantially zero.

52. (Currently Amended) A method according to any of claims 48~~—51~~, and comprising measuring a time to discharge the capacitance, and generating a measure of the capacitance in response to the time.

53. (Currently Amended) A method according to any of claims 48~~—52~~, and comprising measuring a time to apply the potential to the tissue, and generating a measure of the capacitance in response to the time.

54. (Currently Amended) A method according to any of claims 48~~—53~~, and comprising measuring an impedance of the tissue, and altering the potential applied to the tissue in response to the impedance.

55. (Currently Amended) A method according to any of claims 48~~—54~~, wherein the current comprises a value that substantially eliminates anodal break excitation of the tissue.

56. (Original) A method according to claim 55, wherein the value is less than a pre-set fraction of a stimulation current caused by the potential.

57. (Original) A method according to claim 56, wherein the pre-set fraction is approximately 5%.

58. (Original) A method according to claim 48, and comprising:

providing a battery having a first battery terminal and a second battery terminal coupled to ground;

providing a first and a second stimulation electrode

between which the capacitance is formed;

connecting the first battery terminal and the first stimulation electrode;

generating the potential between the first and the second stimulation electrodes;

injecting the current between the first and the second stimulation electrodes;

providing a stimulation capacitor which receives a stimulation potential in response to applying the potential;

coupling a detector between ground and the stimulation potential; and

monitoring with the detector a second-stimulation-electrode potential on the second stimulation electrode.

59. (Original) A method according to claim 58, and comprising:

receiving a Boolean signal from the detector in response to the second-stimulation-electrode potential;

setting a targeted voltage;

decrementing the targeted voltage in response to the signal being true; and

incrementing the targeted voltage in response to the signal being false.

60. (Original) A method according to claim 48, and comprising:

monitoring a state of charge circuitry adapted to apply the potential, and generating a state signal in response to the state; and

receiving the state signal and setting the potential in response thereto.

61. (Original) A method according to claim 60, and comprising:

generating a pulse, at the potential, in a sequence of pulses and setting a target voltage in response to the state signal and the potential;

altering the potential to a future potential in response to the target voltage; and

applying the future potential to a subsequent pulse in the sequence.

62. (Original)Apparatus for stimulating tissue having a capacitance, comprising:

charge circuitry which is adapted to apply a potential to the tissue, causing a voltage to develop across the capacitance of the tissue;

discharge circuitry which is adapted to inject a current to the tissue so as to discharge the capacitance; and

feedback circuitry which is adapted to monitor the potential and to control the current in response to the potential.

63. (Original) A method for stimulating tissue having a capacitance, comprising:

applying a potential to the tissue so as to cause a voltage to develop across the capacitance of the tissue;

injecting a current to the tissue so as to discharge the capacitance;

monitoring the potential to generate a monitored potential; and

controlling the current in response to the monitored potential.